GEOMETRY.

378. Proposed by G. I. HOPKINS, A. M., Instructor in Mathematics and Astronomy, Manchester High School Manchester, N. H.

In the triangle AED, the lines BE and CE are drawn to the points B and C in the base of the triangle. If $AE=100$, $ED=125$, $BC=60$ and $\angle AEC=\angle BED=$a right angle, compute AB, BE, EC, and CD.

II. Solution by E. B. ESCOTT, University of Michigan, Ann Arbor, Mich.

The solution by A. H. Holmes is correct in principle, but he has made some numerical mistake. The method of successive approximation is not only easier, but has the advantage that the work checks itself (except the last operation).

Using Mr. Holmes' notation, we have,

$$4\sin\theta=5\sin\psi\ldots(1);$$
$$25\left(\frac{1}{\cos\psi}-\cos\psi\right)+20\left(\frac{1}{\cos\theta}-\cos\theta\right)=12\ldots(2).$$

Let $\theta=35°$. Then from (1), $\sin\theta=.4589$ and $\psi=27°\ 19'$, $\cos\psi=.8885$. In (2), the first member has the value 13.955.

Let $\theta=33°$. From (1), $\psi=25°\ 50'$. First member of (2) $=12.3445$.

Let $\theta=32°\ 34'$, $\psi=25°\ 30'\ 20''$. First member of (2) $=12.0065$.

Let $\theta=32°\ 33'$, $\psi=25°\ 29'\ 41''$. First member of (2) $=11.999915$.

The work can be shortened by using interpolation just as is done in using logarithm tables.

With these last values of θ and ψ, we get,

$$AB=58.635,\quad BE=59.608,\quad EC=63.830,\quad CD=78.485.$$

NOTES AND NEWS.

Dr. E. B. Stouffer, who received his Ph.D. degree from the University of Illinois in June, has been appointed instructor in mathematics in the same institution. M.

Miss Josephine Burns, who was a graduate student in the University of Illinois during the past year, has accepted a fellowship in mathematics in the University of Wisconsin for the coming year. M.

Dr. Thomas Buck and Dr. L. I. Neikirk resigned their instructorships in the University of Illinois to accept similar positions in the University of California and the University of Washington, respectively. M.